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Salience Games: Private Politics when Public Attention is Limited*

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Abstract

We develop a theoretical model in which an industry and NGO play *salience games*—they act strategically to influence public attention to social impacts in the sector. Salience stimulates extra donations for the NGO, and thus firms have incentives to hide the damage they do in order to avoid public attention. We show that when public attention is scarce, a greater campaign orientation induces industry to invest in greater obfuscation, starving the NGO of funds. The NGO in turn strategically biases its mission away from campaigns—and in favor of sector-wide versus firm-specific campaigns—but not by as much as a welfare-motivated planner would want. When public attention is avoided by a mixture of substantive and symbolic action, we show that a greater weight on the former induces the NGO to become more campaign-oriented, with social damage lower. Highly competitive industries have greater incentives to commit to substantive actions.

Keywords: Non-market strategy; NGOs; limited attention; salience.

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1 Introduction

Firms and industries vary not just in the flow of environmental (or social) damages they produce, but also in the propensity for these negative impacts to catch the public eye (Hoffman and Ocasio, 2001). Polluters have obvious reasons for preferring that their impacts avoid public attention (become “salient”).¹ Green activists have other incentives. They recognize that they get more donations when damage is in the public eye—donations that can then be used to deliver a more potent campaign against the industry and/or to increase spending on other unrelated activities. This makes management of salience a key battleground between polluters and the green NGOs with which they interact, something both sides seek strategically to influence. It is the implications of such “salience games” that we explore.

Our starting point is the recognition that public attention is a scarce resource, and that “[w]henever the amount of information produced exceeds the amount of attention available to consume it, a competition for attention is born” (Thorngate et al., 2011, p. 17). Davenport and Beck (2001, p. 8) assert that managing scarce attention is *the* central task of modern business: “If you want to be successful in the current economy, you’ve got to be good at getting attention.” Or—if you are causing damage, as are the firms in our model—good at *avoiding* attention.

Researchers in several disciplines have sought to understand the process through which particular social issues enter public consciousness. Hilgartner and Bosk (1988) start their classic sociological treatment with the following questions,

Why does the plight of the indigenous people of South America receive less public attention than the plight of laboratory rats used in scientific research? Why do toxic chemical wastes flowing into landfills receive more public discussion than the dangerous chemicals present in America’s workplaces? The extent of the harm in these cases cannot, in itself, explain these differences, and it is not enough to say that some of these situations become problems because they are more “important”. All of these problems are important—or at least capable of being seen as such. (Hilgartner and Bosk, 1988, p. 54)

They go on to make a compelling case that the focus of community attention at any given time is not exogenously given, but rather endogenous and manipulable.

¹The concept of salience is an important one in a number of fields. In psychology salience refers to any aspect of a stimulus that, for whatever reason, stands out from the rest. In neuroscience, salience is “a state or quality by which something stands out relative to its neighbors” (Wikipedia entry for Salience (neuroscience), accessed December 2016). This notion of *conspicuousness relative to others* will recur in the model here. Salience has been introduced in economics, though applied quite differently, by Chetty et al. (2009). In their model consumers under react to a sales tax that is not factored into the ticket price—they fail to “notice” it.

We develop a model in which public attention is limited and can only attend to a small number of issues at once. Plausibly, we assume that the probability the damage done by a given firm catches the public eye depends on the *quantity* and *visibility* of that damage, both of which the firm can manipulate. But this likelihood is not determined in a vacuum. Rather, the behaviors of one firm vie for attention with the behaviors of others, and with a diverse set of unrelated but attention-worthy topics (e.g., excessive immigration, prison reform, the state of the national finances).

Regardless of how the behavior of a firm comes to public attention, by rendering a particular issue or practice salient it will typically cause attention to fall not just on the particular firm but the industry/practice in general. As a senior Amoco executive quoted in Hoffman (2001, p. 189) put it, “[w]e are an oil company, and we have to live with the sins of our brothers. We all get painted with the same brush.”²

It is straightforward to think of cases in which the polluting behavior of firms catches the public eye. For example, the headline in *The Daily Mail* newspaper on 15 April 2016 was “China’s Zhongting River Turns Red Due to Illegal Waste,” and tells how the local residents were alerted to the illegal discharge practices of iron processors by the change in color of the river water. Because it is impossible for downstream residents to assess which upstream firms were responsible for the contamination, it is natural that the entire upstream industry became salient after the incident. However, an entire industry can become salient even when an event can be traced back to a specific firm. For example, in 2013 a train hauling oil derailed in the small Quebec town of Lac-Mégantic, causing widespread damage and killing 47. It became the 2013 Canadian Press News Story of the Year. Before the derailing most Canadians were unaware of the fact that crude oil was transported by train, let alone of the detailed issues around wagon design, routing and scheduling practices that subsequently became subjects of popular discussion. As such it was an event that launched public debates about the environmental and safety implications of the continent’s boom in oil-by-rail. “It caused everyone living in a small Canadian city, or town that had freight rumbling through it, to stop and ponder” (*The Toronto Star*, 25 December 2013).^{3 4}

²In this spirit there is a well-established theoretical and empirical literature on collective reputation as “the influence of stakeholder activism has made industry-level reputation management more important than ever” (Winn et al., 2008, p. 35).

³For modeling purposes we treat the negative externality as a flow—and for that reason use the terms behavior and impact interchangeably—but this last example highlights that single events (such as accidents) can play an important role in attracting “the focus of public attention” (Hoffman and Ocasio, 2001, p. 414). At the cost of complexity, the model we present could be adapted to allow for stochasticity, though the insights would be undisturbed.

⁴While our focus is environmental, the logic could be applied to a wider set of social impacts. A non-environmental example relates to the coming to awareness of unfair labor practices in the tea sector. In a 2014 report by The Guardian newspaper—*Assam’s Modern Slaves: The Real Price of a Cup of Tetleys*

There are diverse reasons why an industry might want to avoid public scrutiny over social impacts, and these have been investigated in various strands of literature (e.g., Friedman, 1999; Baron, 2001; Lyon and Maxwell, 2008). Our objective is to better understand the strategic interaction between activists and industries in a setting where we explicitly recognize that public attention is scarce. In our model it is because the vitality of the NGO—supported by the funds that it is able to garner—increases with public awareness of the issue in question, making it a more formidable opponent. In the words of Stroup and Meiners (2000, p. 18): “A crisis captures the public eye. Activist organizations benefit from a crisis... It keeps them funded.”

The model will embody a variety of simplifications and assumptions—and our main results are likely robust to varying many of the particularities of the model—however at the core are the following elements.

(1) **Industry:** Each firm in an industry chooses independently how much environmental damage to impose, and how much effort to devote to reducing the visibility of that damage—the likelihood that it gets noticed. We use the terminology “cloaking” for the latter. Reducing damage and/or visibility is costly. For clarity of exposition we will go some way with a simplified version of the model in which the damage level is fixed, to concentrate on the “information management” dimension of the game, but section 3 relaxes this assumption. Importantly, this is not a disclosure game in the spirit of Milgrom (1981) because firms do not choose whether to disclose a particular piece of information; instead, they choose a cloaking strategy that influences the probability they will become salient.

(2) **Limited public attention and salience:** The probability that the damage done by a particular firm catches the public eye depends on the quantity and visibility of that damage compared to competing demands for public attention. There are various ways in which this could be modeled. Bordalo et al. (2013) propose a general “salience function.” We adopt the more tractable “attention contest function” approach, similar to Haan and Moraga-González (2011), in which each firm’s behavior constitutes a “bid” for attention in

Tea—a journalist exposed the very low wages paid to pickers of Tetleys tea (at 94 rupees per day barely half the minimum wage in that jurisdiction). It led to public outrage and spawned articles by Time Magazine, CNN about the sector in general (for example two subsequent BBC reports were entitled *Top Tea Brands Exposed*, and *The Bitter Story Behind the UK’s National Drink* and each listed in their opening paragraph several of the big brands). Indeed, it almost immediately became clear that Tetley was no different from others: “tea pickers’ wages in Assam are set not by any individual company but by an industry-wide wage settlement ... [t]herefore, such wages apply equally to all tea plantation companies in Assam, which have been supplying and continue to supply many of the world’s tea brands” (Bouckley, 2014). After concerns about child labor are identified in the supply chain of Ferrero, the account immediately makes clear that the impact is sector-wide; indeed, the article goes on to refer to Hershey, Mars and Nestle by name and to observe that “[c]ocoa is generally produced by farmers living in extreme poverty, and child labor is common on the majority of cocoa farms” (Sequeira, 2016).

a contest for public attention.⁵ If any one firm in the industry catches the public eye, then we say that the performance of the industry is salient.

(3) **NGO and salience as a “cash cow”**: An NGO receives donations and uses them to extract “clean-up” from the industry but also to engage in other projects. Critically, income to the NGO is assumed *higher* when the issue/industry is salient. While we suggest plausible micro-foundations that could be used to underpin such a relationship, the analysis remains reduced form in this regard. Abstracting from detailed assumptions about donor behavior and consumer rationality sharpens our focus on the game between industry and NGO.⁶ The NGO is defined by a mission statement that commits it to how it will split its income between various activities.

Our set-up allows us to think in a more nuanced way about the incentives facing firms and NGOs. The collective character of industry salience—that if the practices of one firm engaged in a particular activity make the front page then the whole sector finds itself in the public gaze—creates a particular pattern of incentives *within* an industry. This can affect both the level of environmental damage and the intensity of effort with which damage is cloaked.

Of course, just as industry has incentives to manage salience, so too the NGO will want to engage in what might be called “issue maintenance”—influencing the likelihood that the public becomes aware of the social impacts of the sector. There are a variety of ways in which the NGO might seek to do this directly; it might, for example, pay for television advertising or hand out pamphlets to raise awareness of social impacts directly. These have been modeled elsewhere, and we abstract from them here (Abito et al., 2016). The two mechanisms that will feature in the current model are more structural in character, and relate to NGO design—what “sort” of NGO would be expected to flourish in this environment? These mechanisms are: (a) the NGO may commit to (or develop a reputation for) a strategy that involves *not* targeting a campaign too narrowly on the particular *firm* whose activities triggered *industry* salience, and/or (b) the NGO may adopt a mission that commits it to channel a higher-than-otherwise fraction of its income to projects other than campaigning against the salient industry.⁷ Each of these weakens the industry-level and intra-industry

⁵As noted, public attention does not always focus on the issue of greatest social import. There is a non-deterministic dimension to these things that we capture by way of the contest success function. The public may become fixated on celebrity behavior commentary, the “tweets” of politicians etc.; it is beyond the scope of this paper to provide an explicit rational actor model of public attention. Cloaking behavior can reduce the likelihood that a firm’s damages catch the public eye, which seems eminently realistic.

⁶NGOs and charities are well aware that having “their” issue salient is a key driver of donations. To take a dramatic non-industry example, consider the following headline: “Aid Groups See Dramatic Increase in Donations after Death of Syrian Toddler” (Los Angeles Times, 3 September 2015).

⁷Traditional folk wisdom is that an NGO will always target a particular firm, especially if it is trying to mobilize a consumer boycott. It is clearly much easier to induce a consumer to abstain from the purchase

incentives to invest in collective-salience avoidance. We explore these and other possibilities below.

2 Model

2.1 Firms

There is a single industry made up of n symmetric firms. The activity of each firm generates net income r (revenues net of production costs) and creates environmental damage d . For ease of presentation we will talk about environmental damage or pollution, but it should be apparent that d can be interpreted more widely. The damage done by each firm is known by an NGO (and by industry members), but may or may not be noted by “the public,” which is limited in its attention.

One way in which a firm might try to avoid public attention is by reducing the damage it does *ex ante* (i.e., abatement). Initially we will ignore this option, fixing d in this section in order to focus on other cloaking actions. Later, in section 3, we show that endogenizing d , while complicating the analysis, does not disturb the central results.

The *visibility* of damage may vary between firms in a way that a firm can influence. A firm chooses an amount of effort h to hide its damage from public visibility. The larger an h a firm chooses, the less visible is its damage, and we will sometimes refer to it as *cloaking effort*.⁸ This formulation implies that there is no social benefit to such effort—it simply makes it less likely that the public will “notice” the damage being done.⁹ The choice of h can be thought of as embedded in a choice of technology, with technology broadly construed to include processes and practices. For example, firms may engage in “greenwashing” to make themselves appear environmentally responsible—see Lyon and Montgomery (2015) for a review. A firm’s cloaking effort may also be more technical in nature and relate to the “inspectability” of its facilities (Heyes, 2000), or the precision of its disclosure documents (Sinclair-Desgagné and Gozlan, 2003).

of a particular brand of coffee, gasoline or sports apparel than from the product in general. Despite this we frequently observe campaigns launched against sectors or activities more widely—the nuclear power sector, the tea industry, the activity of oil-by rail, etc.—consistent with the model here.

⁸Although our modeling approach is different, and we focus on a metric of social performance, our notion of cloaking is similar to shrouding of product attributes in Gabaix and Laibson (2006).

⁹That reducing d might also be a way to reduce probability of salience—and that such reductions imply additional benefits external to the firm—complicates the welfare analysis when we get to it later. The fixed d variant that we develop in this section allows for cleaner elucidation of our main insights.

2.2 Saliency

Central to our model is the concept of saliency: public attention is limited. For simplicity, suppose that in any period the public can only be attentive to a single topic, and this topic is said to be the salient one (Hilgartner and Bosk, 1988). This could reflect constraints for the media—there can only be one lead story on the television news or on the front page—which necessitates the selection of stories by editors. Or it could represent something more primitive about the process whereby public gaze is drawn to one of a set of issues.

Let there be $n + 1$ topics—the environmental damage being done by firm 1, the environmental damage being done by firm 2, etc., and some unrelated “outside” topic. In a fuller model one could envisage having more than one industry, each with multiple firms. The degree to which this outside event draws attention away from the industry will give a measure of how challenging is the public relations context. A more visible outside option will make it, other things equal, easier for firms in the industry to avoid the public eye.

Assumption 1 (Catching the Public Eye). *The activities of firm i catch the public eye with probability $p(h_i, h_{-i})$ where $h_{-i} = \sum_{j \neq i} h_j$, $p_1(h_i, \cdot) < 0$, $p_{11}(h_i, \cdot) > 0$, $p_2(\cdot, h_{-i}) > 0$, $p_{22}(\cdot, h_{-i}) > 0$, and $p_{12}(h, (n - 1)h) \geq 0$.*

In other words, the likelihood that a particular firm catches the public eye depends not only on its visibility, but also on the visibility of others. Following Haan and Moraga-González (2011), saliency then takes the form of a contest where each firm “bids” for attention (albeit this is a contest that the firm is trying to lose).¹⁰

The probability that firm i ’s environmental conduct becomes salient is decreasing in its cloaking effort (although there are diminishing marginal returns to such effort) and increasing in the effort that other firms put into their own cloaking. These are fairly natural assumptions and reflect the ideas that there is scarcity of public attention and that firms can influence the likelihood that their actions catch the public eye. This is motivated by our discussion of saliency up to this point as stemming from both a scarcity of public attention and the behavior of firms. The last condition in assumption 1 says that, when all firms engage in the same amount of effort, the marginal return of putting more effort into obfuscation, from the point of view of a *particular* firm, is decreasing in the collective effort levels of others. This is motivated by the idea that saliency is relative—if the average level of cloaking effort by

¹⁰One might question whether it is realistic that saliency can be influenced by firms’ actions at all, since in practice there are so many alternative options to catch public attention. However, there is a large management literature showing that firms devote substantial attention to diverting public attention from their less savory activities (Oliver, 1991), something they would not bother to do if they felt their actions had no impact. For example, they may engage in “symbolic management” by issuing public statements that are not related to their actual behavior (Westpahl and Zajac, 1998), or they may greenwash by selectively disclosing positive information while withholding negative information (Lyon and Maxwell, 2011).

firms increases, this will never make it easier for a particular firm to avoid public scrutiny by investing in cloaking of their own. These are common features of typical multi-player contest success functions (including, for example, the Tullock-Buchanan contest function used in Haan and Moraga-González (2011)).

The outside option also represents a “bid” for attention and leaves open the possibility that *no* firm in the industry that we model will catch the public eye.¹¹ This is realistic. Because we assume that at most one firm can catch the public eye, the probability that some firm in our industry does so is $\sum_{j=1}^n p(h_j, h_{-j}) < 1$. To embed in the model the notion of salience as a collective or industry-level phenomenon, if any firm i in the industry catches the public eye then we say that the *industry is salient*. In other words, if the behavior of any *one* firm catches the public eye, that behavior becomes salient for the *whole industry*. This conforms with various examples that we presented earlier and allows us to explore important intra-industry incentives. Of course, in practice the spillover of public focus from one firm to another might be less than complete—so that one firm catching the public eye would not necessarily or fully draw attention to the same behavior engaged in by other firms in the same sector—but the notion that salience of an industry emerges *endogenously from the behavior of constituent firms* is consistent with existing research but has been ignored altogether in existing formal models (e.g., Baron, 2001, 2016).¹²

2.3 The NGO

There is a single NGO that is concerned with environmental improvement. It can pursue its objective in two ways. Since d is assumed fixed in this section, the NGO cannot (for the moment) directly influence the amount of damage created by the industry. It can, however, put pressure on firms to clean-up and mitigate the damage done. That is, while the NGO cannot influence firms to abate *ex ante*, it can still reduce environmental damage *ex post* by pressuring firms to mitigate some of the environmental damage done in their operations. The process by which this happens is black-boxed here but this is a common formulation (Baron, 2009, 2011) in stylized NGO/firm conflict settings. More concretely the NGO can launch a *campaign*. If an NGO spends x on a campaign against a firm then it can “force” that firm to clean-up an amount of damage αx , where α is a parameter that indexes the

¹¹There can be many outside options competing for attention; we treat the outside option as non-strategic.

¹²Technically speaking, the assumption that the entire industry becomes salient is not essential to the model. All that is needed is that the resources available to the NGO are greater if any one firm in the industry catches the public eye. Once that occurs, the NGO’s preference for a campaign that is broad in scope (which we demonstrate below in Proposition 5) ensures that any one firm catching the public eye would impact prospects for all firms in the industry.

As will be seen shortly, it would not be difficult to generalize salience to incomplete spillover in public attention. We focus on the simpler case described.

campaigning effectiveness of the NGO. An NGO with a higher α is a more effective opponent and is able to force more cleanup-per-dollar (a similar reduced form approach to campaigns is taken by, for example, Baron (2009)).

A good example of clean-up operations comes from oil spills such as those of the Exxon Valdez or the Deepwater Horizon. These are *ex post* actions that attempt to partially compensate for the damages already done. (In section 3 we extend our analysis to include the possibility of abatement, i.e., *ex ante* actions that reduce the amount of damage that a firm will ultimately create. In the case of the Exxon Valdez, for example, this might have involved constructing the ship with greater structural integrity.)

In addition to campaigning against one or more firms in this industry, the NGO can also direct effort towards non-campaign activities that we will formalize as a single “backstop” project. This is realistic—many of the bigger activist groups not only run campaigns against polluters but also operate large-scale conservation projects. The WWF-International website details their campaigning against various lines of business, but also the work done in fourteen of their largest conservation areas. For example, the six million square-kilometer Coral Triangle provides a “global center of marine biodiversity” in the seas between the Philippines, Papua New Guinea and Malaysia (see Figure 1). As well as matching reality, analytically the backstop project has the effect of ensuring that in its decision making the NGO has a strictly positive opportunity cost of funds devoted to this campaign. This is realistic and sensible.

[Insert Figure 1 about here]

If industry does x units of clean-up, this reduces the amount of damage done by the industry and the NGO gets payoff $b(x)$, where $\partial b(x)/\partial x > 0$ and $\partial^2 b(x)/\partial x^2 < 0$. If instead the NGO devotes x units of resource to the backstop, this produces payoff $\phi b(x)$, where $\phi > 0$. For a given budget the NGO’s objective is the sum of these payoffs (Baron, 2009).

The NGO requires money in order to campaign and/or to contribute to the backstop project. Support for it is stimulated when the industry is salient.

Assumption 2 (Salience boosts NGO income). *NGO income is \overline{m} if the industry is salient, and $\underline{m} < \overline{m}$ otherwise. We define $m_e = \overline{m} - \underline{m}$ as the boost in NGO income associated with salience.*

There are several ways in which a sub-model could be appended to motivate this assumption. For example, there could exist some “latent” or “unaware” donors who donate if and only if the issue/industry in question comes to their attention (is salient), similar to

donors in Aldashev and Verdier (2010).¹³ It is the income boost associated with salience that provides the incentive for firms in the industry to worry about salience, and for the NGO to want to “issue manage.”

To define itself, the NGO chooses a *mission statement*—the statement of what it does—and a *targeting strategy*.

Assumption 3 (NGO Design). *The NGO (a) adopts a mission statement that specifies the fraction γ of funds to be devoted to campaigns, with the remainder $(1 - \gamma)$ being directed to the backstop project; (b) decides whether it will target campaigns at the industry as a whole (broad campaign) or at the firm which caught the public eye and triggered salience (narrow campaign).*

Ex ante there is uncertainty over the funds the NGO will obtain and this will depend upon the subsequent choices of firms and the outcome of the probabilistic salience process. We treat the choice of mission statement and campaign type as institutional design choices. Heyes and Martin (2015) provide a formal model of NGO mission-statement competition in a multiple NGO setting. Alternatively, we can think of the analysis as addressing the question: What sort of NGO will prosper in these circumstances? The design choices of the NGO set the activist backdrop against which firms in the industry then make choices.

Note that for analytic convenience we abstract from the possibility that the NGO’s choice of γ might directly influence donations. The model can be extended to allow for that—at the expense of additional notation and margins to consider—but nothing fundamental changes in terms of results. We have deliberately simplified donor behavior as it is not the focus here. For the qualitative insights of the analysis to hold all that the model needs is that salience boosts NGO income (assumption 2).

The mission commits the NGO to how it will divide funds between the campaign against this industry and the backstop project. Of course we do not propose that an actual NGO writes such a split so starkly into the contract it implicitly has with members and other supporters. However, the big environmental groups are quite stable in the ways in which they disburse funds through time among broad spending categories.¹⁴ The NGO also commits to

¹³For instance, it is widely observed that charitable donations increase in the wake of a natural disaster, and that these donations are often quite out of proportion to need but rather to how the disaster is reported (Evangelidis and van den Bergh, 2013). This is similar to the “identifiable victim effect,” where donors will donate more to help identifiable victims, such as those seen in pictures, rather than (an equal number of) statistical victims (Jenni and Loewenstein, 1997).

Salience is an inherently behavioral concept and as such we do not wish to go too far down the road of developing a model with rational, forward-looking Bayesian donors. Any model that implies a higher income to the NGO in the event of industry salience will suffice.

¹⁴As shown in Lyon (2010), the major environmental groups tend to fall into two camps, either confrontational groups such as Greenpeace that devote a large share of their resources to anti-corporate campaigns,

a campaign strategy. We consider the two extreme types of targeting, one in which the NGO campaigns against the whole sector equally, dividing its resources for campaigning across all firms, and another in which it campaigns only against the firm whose catching of the public eye triggered salience. Commitment is most likely established by reputation in a repeated version of the model—is this an NGO which makes a habit of going after particular firms, or after broader issues? We establish later that the NGO will always prefer the latter, so the core of our analysis embeds that choice.

2.4 Timing

The timing of the game is straightforward.

1. (NGO) The NGO commits to a mission γ and targeting strategy (narrow or broad).
2. (Firms) Firms independently choose their cloaking efforts h .
3. (Nature) Salience or non-salience of the industry is realized (this is stochastic, in line with the expression in assumption 1).
4. The NGO's income is realized (higher if salience is realized in stage 3) and it follows the allocation rule that it chose in stage 1.

This timing is summarized in figure 2.

[Insert Figure 2 about here]

Before solving the game, it is worthwhile to discuss the timing. Design of the mission statement in the first stage follows Heyes and Martin (2015): the NGO commits to how it will allocate income between activities *ex ante*.¹⁵ The design of the NGO signals to firms what sort of opponent it will be and influences the choices of firms, in particular how much effort they devote to reducing visibility for fear of facing a costly campaign. Firms can then use this information in stage 2 when they decide how much effort to exert to cloak their environmental damage. Stage 3 is where the main novelty of the model resides—the NGO

or collaborative groups such as Environmental Defense Fund that devote the bulk of their resources to other activities.

¹⁵Credibility is important here as *ex post* the NGO will always wish to choose γ to equalize marginal benefit across issues. There are several reasons to think that the mission set *ex ante* is credible. Beyond reputational reasons, the choice of mission could also entail some sunk cost if γ is seen as a technology for using funds (e.g., by purchasing the Rainbow Warrior, Greenpeace commits to a marine campaign of some intensity). It is standard in the literature to assume that the NGO can credibly commit to its campaign (Baron and Diermeier, 2007).

has greater income when the industry with which it is matched becomes salient, and this depends in part on the resources firms employ to remain out of the public eye. Finally, since the NGO can successfully commit to its mission, the NGO mechanically enacts its mission *ex post* in stage 4 and payoffs are realized.

2.5 Solving the Model

We solve backwards and restrict attention to symmetric, sub-game perfect Nash equilibria. Proofs are in the Appendix.

2.5.1 NGO funds and campaign (stages 3 and 4)

By definition, for any given level of funds m that the NGO has available, it spends an amount γm on a campaign against the targeted firm or firms in the industry, forcing cleanup $\alpha \gamma m$. Remaining funds $(1 - \gamma)m$ are spent on the backstop project. The improvement to the environment, and thus the payoff to the NGO, is

$$B(\gamma, m) \equiv b(\alpha \gamma m) + \phi b((1 - \gamma)m).$$

If the industry becomes salient, the NGO attracts a higher level of funds \bar{m} , otherwise the lower level \underline{m} . The NGO benefits from industry salience.

For the purpose of benchmarking, define $\hat{\gamma}$ to be the mission statement the NGO would choose if it were unable to influence salience. In this case it would choose a mission to maximize overall benefits by balancing the marginal benefit of funds allocated to campaigning with the marginal benefit of funds allocated to the backstop issue. Thus, $\hat{\gamma}$ satisfies

$$B_1(\hat{\gamma}, m) = \alpha b'(\alpha \hat{\gamma} m)m - \phi b'((1 - \hat{\gamma})m)m = 0$$

or

$$\frac{b'(\alpha \hat{\gamma} m)}{b'((1 - \hat{\gamma})m)} = \frac{\phi}{\alpha}. \quad (1)$$

In order to simplify the benchmark and ensure that the NGO's choice of mission is time-consistent, assume that b' is multiplicative in the sense that $b'(\alpha x) = b'(\alpha)b'(x)$ (e.g., $b(x) = \log(x)$ has this property). This ensures that the NGO's optimal mission in the absence of endogenous salience, $\hat{\gamma}$, is not a function of the level of resources, m , that it has available.

2.5.2 Firm choices (stage 2)

Firms anticipate how the NGO will behave contingent on the income that it has (and hence the salience of outcomes). If the NGO campaign targets equally all firms in the industry (which we show below is optimal), dividing the resources for its campaign across all n firm, then the expected payoff for a firm i is

$$\mathbb{E}\pi(h_i, h_{-i}) = r - \frac{1}{n} \sum_{j=1}^n p(h_j, h_{-j}) \alpha \gamma m_e - \frac{\alpha \gamma m}{n} - h_i.$$

This makes clear that strategic interdependence between firms here comes through the shared nature of the salience outcome. If any *one* firm catches the public eye, the *whole industry* is rendered salient and finds itself confronted by a better-funded NGO that launches a campaign against all firms in the industry.

Firm i chooses h_i to maximize its own expected profits. An interior solution h_i^* is then implicitly defined by the associated first-order condition

$$\left[-p_1(h_i^*, h_{-i}) - \sum_{k \neq i} p_2(h_k, h_i^* + h_{-k-i}) \right] \frac{\alpha \gamma m_e}{n} = 1.$$

By reducing the visibility of its damage, a firm can reduce the expected funds available to the NGO, conditional on the actions of other firms, and hence the expected cost of a campaign.

In a symmetric Nash equilibrium, h^* ,

$$[-p_1(h^*, (n-1)h^*) - (n-1)p_2(h^*, (n-1)h^*)] \frac{\alpha \gamma m_e}{n} = 1. \quad (2)$$

The equilibrium h^* can be seen as the industry's collective action to influence salience. When all firms operate in a “reputation commons”—i.e., exist in a setting where all members of the industry are “tarred with the same brush”—there are incentives to engage in collective management of salience (Winn et al., 2008).

Taking the total derivative of (2) leads directly to the following.

Proposition 1. *Equilibrium effort by firms to cloak environmental damage is (a) increasing in the fraction of funds an NGO commits to campaign and (b) increasing in the effectiveness of the NGO. That is, $\partial h^* / \partial \gamma > 0$ and $\partial h^* / \partial \alpha > 0$.*

If an NGO commits to directing a greater portion of income to campaigns, and/or is more effective per unit of campaign funds, then firms spend more on trying to avoid industry salience. This alerts us to a strategic consideration that the NGO will want to account for in

designing itself: a greater campaign orientation will encourage greater cloaking effort from the industry.

Industry structure naturally affects the severity of free-riding within the industry and so collective incentives. As each of the n firms in the industry are by assumption the same size, increasing the number of firms reduces concentration in the industry. Totally differentiating (2) leads to the following.

Proposition 2. *As the number of firms in the industry increases (concentration decreases) each firm exerts less cloaking effort (i.e., $dh^*/dn < 0$), and the probability of industry salience increases.*

There is a collective action problem associated with managing the visibility of the industry. In less concentrated industries each firm is less careful about cloaking its environmental damage—put another way, as concentration *falls* the willingness of any individual firm to invest in collective reputation is diminished.¹⁶

An interesting implication of the above results is the following;

Corollary 1. *Equilibrium profit of a representative firm may be increasing or decreasing in γ . For a sufficiently unconcentrated industry, the equilibrium profit of a representative firm will be increasing in γ*

This may seem counterintuitive, since firms naturally prefer not to have to face campaigns from NGOs. However, we cannot rule out that a typical firm may be *better* off when facing an NGO committed to devoting a *larger* share of incremental donations to campaigning, since when faced by such an NGO *all* firms in the sector are induced to take greater care to reduce the visibility of their behaviors. The intensification of campaigning helps to reduce the problem of free-riding between firms. This free-riding problem becomes more pronounced in less concentrated settings, so for a large enough n the profits of an individual firm unambiguously *increase* with the NGO’s campaign orientation.

2.5.3 NGO mission design (stage 1)

Given the ways that firms behave (characterized above) the expected payoff for the NGO is

$$\mathbb{E}B(\gamma, m) = np(h^*, (n-1)h^*)B(\gamma, \overline{m}) + (1 - np(h^*, (n-1)h^*))B(\gamma, \underline{m}).$$

The NGO chooses γ —designs its mission—to maximize its expected payoff. If salience were uninfluenced by the actions of the NGO or the firms, and the NGO’s budget were simply

¹⁶Of course, as the number of firms in the industry rises total damage increases, which will also increase the probability of industry salience. This effect is in addition to the effect identified in Proposition 2.

a randomization between \bar{m} and \underline{m} , with the probability of \bar{m} given by some exogenous p , then an interior solution to the NGO's mission design problem would be $\hat{\gamma}$. We will refer to the mission chosen in this fashion as reflecting the *impact effect* of the NGO's design choice.

When salience is determined endogenously, however, the NGO knows that how it designs itself will influence the level of funds it has available both for campaigns and for its other activities. Thus, we can define the “salience effect” $S(\gamma, \bar{m}, \underline{m})$ as the marginal effect of a change in the NGO's mission on its expected payoffs, written as

$$S(\gamma, \bar{m}, \underline{m}) \equiv \underbrace{n \frac{dp(h^*, (n-1)h^*)}{dh} \frac{\partial h^*(\gamma)}{\partial \gamma} [B(\gamma, \bar{m}) - B(\gamma, \underline{m})]}_{\text{Salience effect}}, \quad (3)$$

where $dp/dh \equiv p_1 + (n-1)p_2$.

With salience endogenous, an interior solution to the NGO's problem is at γ^* defined by

$$\frac{\partial \mathbb{E}B(\gamma^*, m)}{\partial \gamma} = \mathbb{E} \frac{\partial B(\gamma^*, m)}{\partial \gamma} + S(\gamma^*, \bar{m}, \underline{m}) = 0. \quad (4)$$

Recall that, from (2), $dp/dh < 0$ and Proposition 1 showed that $\partial h^*/\partial \gamma > 0$. It is easy to see that $B(\gamma, \bar{m}) > B(\gamma, \underline{m})$, so that $S(\gamma, \bar{m}, \underline{m}) < 0$. Thus, with endogenous salience the NGO does not simply choose γ to equalize expected marginal benefit across its policy domains (impact effect). Instead, the NGO takes account of how that choice influences expected funds (salience effect).

Since $\mathbb{E} \partial^2 B(\gamma, m) / \partial \gamma^2 < 0$, (4) implies the following.

Proposition 3 (Salience influences NGO mission design). *The NGO devotes a smaller fraction of funds to the campaign than would equalize expected marginal impact between campaign and backstop activity; that is, $\gamma^* < \hat{\gamma}$.*

In effect, the NGO designs itself so as to *soften* the penalty faced by a typical firm should the industry become salient. This reduces incentives for firms within the industry to expend effort hiding the visibility of their impacts, and increases the likelihood of industry salience and therefore expected NGO funds—funds that it can direct both to forcing clean-up from the industry itself and for other unrelated purposes (the backstop project).

The notion here is that an NGO *benefits from having a (visible) enemy*. By having a visible enemy the NGO is able to rally funding both for its campaign and for other uses.¹⁷

¹⁷Researchers have long recognized that firms engage in strategic issue management (Ansoff, 1980). The notion of NGO issue management of the sort formalized here has not been previously identified in the

It is worth noting, however, that while the NGO chooses its mission to maximize expected environmental benefit, because salience is endogenous it does not maximize environmental impact *given* the probability that firms' activities catch the public eye. Having to engage in "issue management" means the NGO does not equate the marginal impact of campaigning with the marginal impact of the backstop (i.e., $\gamma^* \neq \hat{\gamma}$), which means that the NGO picks a mission with less emphasis on campaigning. We discuss the overall implications for the NGO's environmental impact in section 2.7 below.

As with firms, market structure is relevant for NGO choices.

Proposition 4. *The NGO's choice of mission, γ^* , may be increasing or decreasing in n , the number of firms in the industry. Expected impact (i.e., $\mathbb{E}B(\gamma, m)$) and expected funding for the NGO are increasing in n .*

2.6 Targeting salience: NGO preference for broad over narrow campaigns

So far we have assumed that any campaign launched by the NGO targets the whole industry. An alternative approach that the NGO might take in the event of industry salience would be to target only that firm that caught the public eye and triggered salience (the NGO would still wish to target the entire industry in the case when no firm is salient).¹⁸ In this case, expected payoff for firm i is

$$\mathbb{E}\pi(h_i) = r - p(h_i, h_{-i})\alpha\gamma\bar{m} - \left(1 - \sum_{j=1}^n p(h_j, h_{-j})\right) \frac{\alpha\gamma\bar{m}}{n} - h_i.$$

It follows that in a symmetric Nash equilibrium h' ,

$$-p_1(h', (n-1)h')\alpha\gamma\bar{m} + (n-1)p_2(h', (n-1)h')\frac{\alpha\gamma\bar{m}}{n} = 1.$$

Lemma 1. *Each firm exerts less cloaking effort if the NGO campaign targets all firms than if it targets only the firm that caught the public eye and triggered industry salience.*

The NGO can induce lower cloaking effort by adopting a strategy of broad campaigns, exacerbating the free-riding problem of the industry and yielding less cloaking behavior.

scholarly literature, although it is suggested by the case study of Greenpeace and the Shell Brent Spar in Baron (2012).

¹⁸Restricting the NGO to only being able to launch a campaign if a firm becomes salient does not change the analysis of this section.

Proposition 5 (NGO preference for broad campaigns). *Expected impact is greater for the NGO if it targets the whole industry (or randomizes over firms within the industry) rather than targeting only the salient firm.*

In colloquial terms the NGO will prefer to “tar all firms with the same brush.” By softening the implications for any *particular* firm from being the one that brings attention to the activities of the industry *as a whole*, the NGO increases the chance that this indeed happens.

If firms were asymmetric and produced different levels of environmental damage, and the benefits to reducing these damages *ex post* were non-linear, then the NGO would want to adopt a more sophisticated targeting strategy to exploit the higher marginal impact of inducing clean-up from a firm with greater damages. In designing its targeting strategy, the NGO would then need to trade-off the benefit from exploiting a collective action problem among firms with the added marginal benefits from systematically campaigning against particularly damaging firms.

2.7 Welfare

There are two elements to thinking about welfare in the current model. First, does the NGO make socially desirable choices *given* the need to account for salience considerations? In other words, how does the mission γ^* chosen by the NGO compare to that which the planner would wish it to choose? Second, and perhaps more interestingly, how does the *presence* of salience considerations—which we introduce into the literature on private politics in this paper—exacerbate or mitigate any social inefficiency in NGO campaign decisions? We deal with these in turn.

Expected social welfare is

$$\mathbb{E}W(\gamma) = \mathbb{E}B(\gamma, m) + n\mathbb{E}\pi(h^*(\gamma)).$$

At γ^* , the NGO’s chosen mission,

$$\frac{d\mathbb{E}W(\gamma^*)}{d\gamma} = -np(h^*, (n-1)h^*)\alpha m_e - \alpha \underline{m} < 0,$$

so the NGO does not maximize social welfare. In particular, given concavity of $\mathbb{E}W$, γ^* is *greater* than the level that maximizes social welfare.

Lemma 2 (Socially excessive campaign orientation). *The NGO devotes a greater fraction of funds to campaigning against the industry than would a social planner that maximized*

overall welfare.

The NGO adopts a mission that allocates a greater share of funds to campaigning (smaller share to backstop projects) than a social planner would prefer. The source of inefficiency here is important to understand. In its calculations, the NGO does not weigh the impact of its choices on expected producer surplus, whereas the social planner does. Thus, the NGO over-weighs—from a welfare perspective—the (profit-reducing) campaign against the industry.

Nevertheless, comparing this result with proposition 3, we see that the strategic manipulation of the mission in which the NGO engages in order to increase the likelihood of salience (“issue management”) reduces its campaign orientation. As a result, the NGO’s salience gaming produces a better welfare outcome than would arise had the NGO simply equated expected marginal impact across campaign and backstop spending, which would have produced an *even more excessive* campaign orientation. This is summarized in the following:

Proposition 6 (Salience concerns imply NGO and social incentives more closely aligned). *The desire to influence salience induces the NGO to choose a more socially desirable mission (i.e., $\mathbb{E}W(\gamma^*) > \mathbb{E}W(\hat{\gamma})$).*

If strategic manipulation of salience were impossible the NGO would choose its mission to equate expected marginal impact across issues. This would exacerbate its socially-excessive emphasis on campaigning against the industry, as proposition 3 implies. The NGO’s strategic manipulation of salience reduces its campaign orientation, moving it closer to the social planner’s preferred outcome.

It is also interesting to examine the environmental impact *per se* of the NGO’s mission in more detail. Proposition 3 shows that the NGO reduces its campaign orientation relative to the case of exogenous salience, and this might worry donors or citizens whose primary concern is environmental impact rather than overall welfare. However, a revealed preference argument shows that this concern does not manifest itself in the NGO’s behavior. Recall that $\hat{\gamma}$, the NGO’s mission design with exogenous salience, is not a function of m , the level of its resources. In the context of endogenous salience, the NGO could maintain the mission design $\hat{\gamma}$, and it would also enjoy additional resources m_e with probability $np(h^*, (n-1)h^*)$. These additional resources clearly allow the NGO to have a greater environmental impact than it would otherwise. If the NGO then finds that an alternative mission design, γ^* , is more desirable, then this must *a fortiori* provide even greater environmental impact. This is summarized as follows:

Proposition 7. *The desire to influence salience enhances the NGO’s overall environmental impact (i.e., $\mathbb{E}B(\gamma^*, m) > \mathbb{E}B(\hat{\gamma}, m)$).*

Thus, donors to the NGO need not worry that playing salience games will undermine the NGO’s environmental impact. Instead, the NGO uses these games to increase overall environmental impact.¹⁹ Nevertheless, combining the foregoing analysis with proposition 4, we see that the ambiguity in the relationship between the NGO’s optimal mission and industry concentration also applies to the relationship between industry concentration and the environmental benefit from either campaigning or the backstop. That is, when faced with a less concentrated industry, the NGO may commit more (less) towards campaigning and increase environmental impact by putting more resources towards its campaign (the backstop).

3 Avoiding Salience by Behaving Well: Combining Symbolism with Substance

So far we have assumed that the only way that a firm seeks to reduce the probability of becoming the focus of public attention is spending on “cloaking.” Such cloaking is costly, and hence a concern to the firm (and the social planner), but it is a cosmetic device and delivers no direct social benefits.

This modeling approach has merit in its own right—there is substantial empirical and case study evidence that firms in many settings engage in greenwash, public relations on social impact, “uninspectability”, obfuscation, corporate opacity etc.—and has streamlined the model significantly. However it should be clear that another important way in which a firm might seek to stay out of the public eye is by taking substantive action to *reduce* its environmental footprint *ex ante* (i.e., abatement), before salience outcomes are realized. In this section we establish that the insights of the analysis are sustained if a representative firm engages in both *substantive* and *symbolic* action to reduce risk of public scrutiny, justifying our earlier approach on the grounds of simplification.²⁰ We then go on to derive additional

¹⁹From (4) it can be shown that both the environmental benefit from the backstop and from clean-up by firms increases when the NGO alters its mission to strategically exploit salience.

²⁰More generally, there is a sizable literature in management on the strategic use of symbolic management, as opposed to making substantive changes in corporate operations. For example, Delmas and Montes-Sancho (2010) find that early participants in the U.S. Department of Energy’s Climate Challenge program made substantive reductions to their greenhouse gas emissions, but late joiners were simply free-riders on the program’s reputation, and made no substantive improvements. Similarly, Kim and Lyon (2011) find that firms participating the Department of Energy’s Voluntary Greenhouse Gas Registry increased their greenhouse gas emissions over time while reporting reductions, whereas non-participants actually reduced their emissions over time. Though neither directly connects to our model, both studies demonstrate that

insights regarding the management of collective reputation by the industry.

In the extended model we will use a to refer to abatement and h to refer to hiding, or cloaking effort; the function ν maps (a, h) into the probability space such that $p(\nu(a_i, h_i), \nu_{-i}(a_{-i}, h_{-i}))$ gives the probability that firm i catches the public eye— ν is the “production function” that takes abatement and cloaking as inputs to reduce visibility.

Because abatement of environmental damage *ex ante*, a , is something to which the NGO attaches value, but h is not, there is now an additional margin that the NGO will account for. This will make the results of the model less precise. To ease the analysis and make the main points clear we will let $\nu = a + h$, so that abatement and hiding are perfect substitutes in the reduction of visibility, and assume that abatement and cloaking effort each entail unit marginal cost. This allows for firms to employ both substantive and symbolic action to influence salience, but removes any scale effect.

A firm’s decision regarding how much to reduce its visibility is the same as in section 2.5.2, and the equilibrium ν^* is identical to the equilibrium h^* given by (2). The only difference introduced by treating cloaking and abatement separately is the relative intensity with which the firm combines them to reduce visibility.

Letting ω be the share of abatement, in a symmetric Nash equilibrium firms choose a^* and h^* such that $a^* = \omega\nu^*$ and $h^* = (1 - \omega)\nu^*$. Since ν embodies abatement and cloaking as perfect substitutes, any ω is a possible solution. In order to conduct comparative statics we will treat the share ω as exogenous and this can be interpreted as the degree to which a firm can substitute substantive for symbolic action (or vice versa).

Defining B as before, if the industry is salient then the payoff to the NGO can now be written $B(\gamma, \overline{m}) + \beta n \mathbb{E} a^*(\gamma)$ and if the industry is not salient the NGO’s payoff is $B(\gamma, \underline{m}) + \beta n \mathbb{E} a^*(\gamma)$, where β captures the environmental benefit associated with abatement. (If the NGO does not know ω it takes the expected value of abatement. As the results do not depend on the distribution for ω , we leave it unspecified.) Although the analysis for stage 2 of the game remains the same, the first-order condition associated with the NGO’s choice of mission now contains an extra term. In particular, the NGO’s first-order condition is now

$$\frac{\partial \mathbb{E} B(\gamma^*, m)}{\partial \gamma} = \underbrace{\mathbb{E} \frac{\partial B(\gamma^*, m)}{\partial \gamma}}_{\text{Literature benchmark}} + \underbrace{S(\gamma^*, \overline{m}, \underline{m})}_{\text{Salience effect}} + \underbrace{\beta n \mathbb{E}(\omega) \frac{\partial \nu^*(\gamma^*)}{\partial \gamma}}_{\text{Abatement effect}} = 0, \quad (5)$$

where $S(\gamma^*, \overline{m}, \underline{m})$ is the salience effect exactly as in (3) (replacing h^* with ν^* of course). In comparison to earlier, to the extent that the representative firm avoids catching the public

there can be a sharp disconnect between the symbolism and the substance of corporate actions.

eye through abatement (the last term in equation (5)), this encourages the NGO to *increase* its campaign orientation.²¹ Differentiating the last term in (5) with respect to ω and using the same reasoning as in proposition 3 leads directly to the following.

Proposition 8 (Salience avoidance through abatement increases campaign orientation of NGO). *If firms reduce visibility partly by abatement, the NGO chooses a mission that directs a greater share of funds to campaigning (lower share of funds to backstop project).*

In fact, equation (5) shows that in addition to the benchmark effect there are now two additional effects pulling in opposite directions, the salience effect (negative) and the abatement effect (positive). Compared to the “literature” benchmark, which ignores salience considerations altogether, the NGO may bias its mission either against the campaign *or* against the backstop, depending on which effect dominates.

Since part of each firm’s effort to avoid scrutiny now takes the form of substantive, socially-valued abatement, the following is immediate.

Proposition 9. *Expected environmental damage is lower if firms use abatement in addition to cloaking to avoid public attention.*

While it might seem that welfare should increase as well, the reduction in environmental damage must outweigh the increase in the cost firms must bear from the NGO’s now tougher campaign for this to be the case. In general, the effect on welfare can be positive or negative, depending on the extent to which the NGO shifts its missions towards campaigning and by how much firms respond to avoid salient outcomes.

In looking at firms’ environmental impact, when firms abate emissions to avoid salience there are two channels through which environmental damage is reduced. There is an immediate environmental improvement that comes from firms reducing their emissions *ex ante*, and the NGO is also able to get firms to clean-up more of their emissions *ex post* by launching a tougher campaign. By reducing their environmental footprint, firms induce the NGO to launch a tougher campaign that in turn causes firms to further reduce their environmental damage. However, the additional cleanup that results from a tougher campaign is costly for firms, and hence they have incentives to avoid it. As a result, it is straightforward to show the following.

Proposition 10. *When firms act non-cooperatively, they choose to undertake no abatement, i.e., $a_i = 0$ for all i .*

²¹If h is interpreted as greenwashing, then the model predicts a negative relationship between the strength of an activist’s campaign (here γ) and greenwashing, as in Marquis et al. (2016). However, it is the NGO’s *anticipation* of corporate greenwash that influences its campaign, not the influence of the campaign on the subsequent decision to greenwash.

The proposition shows that firms acting individually prefer to undertake cloaking efforts rather than actual abatement, even when the two approaches are perfect substitutes and have equal unit costs. This reflects the sort of free-riding behavior that has led to many environmental problems in the past, such as the 1984 disaster in Bhopal, India, when Union Carbide accidentally released a large amount of methyl isocyanate (Broughton, 2005), or the massive 1986 fish kill in the Rhine caused by chemical releases from the Sandoz plant in Basel, Switzerland (Schwaback, 1989). In both cases, the industry responded by adopting a program of industry self-regulation designed to protect its reputation.

In light of the last proposition, one would expect that industry self-regulation efforts would involve collectively pre-committing to reduce the salience of their environmental damages by cloaking alone before the NGO decides on its mission. In this way firms would influence the NGO to select a mission with less focus on campaigning, thereby reducing both the amount of abatement they must do and the amount of clean-up that the NGO will demand. That is, in an alternative setting in which firms as a group are given the chance credibly to pre-commit to a type of action—symbolic or substantive—*before* the NGO decides on its mission, intuition suggests they would favor the former as this induces the NGO to *soften* its campaign orientation. This reality, however, depends on market structure. Applying corollary 1 leads to the following.

Proposition 11. *If the number of firms in the industry is sufficiently small, then firms prefer to commit to cloak emissions (i.e., $a_i = 0$ for all i). If the number of firms is sufficiently large, firms prefer to commit to abate emissions (i.e., $h_i = 0$ for all i).*

This is understood as follows: a larger (more fragmented) industry is characterized by greater free-riding so that the industry becomes salient more often, leading to the expectation of a costly campaign. Even though abatement leads to a tougher campaign and extra effort on the part of firms to reduce visibility, a commitment to abatement can reduce the expected funds to the NGO by enough to make such pre-commitment worthwhile when (and only when) there is a large collective action problem for the NGO to exploit.²² The driving mechanism here is the more pronounced collective action problem created by salience in a competitive setting, and hence the greater value to its solution through pre-commitment.

²²Returning to the greenwashing example, when industries face the threat of an NGO campaign, our analysis shows that a more competitive industry is less likely to greenwash, consistent with the findings of Fernández-Kranz and Santaló (2010).

4 Conclusions

Many disciplines recognize the importance of salience (including psychology, neuroscience and political science) as a phenomenon. But work in strategy and private politics has either ignored it, or treated the salience or non-salience of particular issues as exogenous phenomenon.

In this paper we develop the first model of private politics that incorporates the strategic creation of salience. We consider an industry whose reputation can be sullied if any member’s social impacts draw public attention, and allow individual firms to invest in “cloaking” effort that reduces the risk that their behavior catches the public eye. The industry is paired with an NGO. The NGO has higher income when the industry is salient, and it recognizes the capacity of salience to act as a “cash cow” —part of the extra funds raised can be siphoned off to finance non-salient but nonetheless socially valuable activities. In adopting a mission—which commits it to how it will split income between anti-industry campaigning and other conservation projects—the NGO faces a tension between wanting to force the sector to clean-up its damages and wanting to ensure a vigorous stream of income.

The contributions of our approach are three-fold. First, we showed that an NGO involved in private politics can optimally “design into itself” features that encourage free-riding between firms in the industry. The NGO strategically exploits this free-riding through the design of its mission and its campaign targeting habits. An important implication of our analysis is that the sort of NGO that will thrive in this environment is one that develops a reputation for targeting whole sectors, rather than single firms which that happen to catch the public eye. In this way, the NGO nourishes the reputational externalities between firms. This in turn raises the probability of industry salience, which increases the NGO’s income prospects. Another success factor for an NGO is to adopt a mission that commits it to devoting a high fraction of incremental funds to projects outside the sector (such as WWF’s Coral Triangle reserve)—not hitting the salient sector *too* hard. This further softens the penalty that all firms in the sector face in the case that any one of them ends up “on the front page.” In an important sense, the NGO needs (visible) enemies in order to fund its activities, and it chooses a mission that helps to keep its enemies in the public eye.

The observation that there is a symbiosis between polluters and NGOs in generating funding for the latter is not new. In a related vein, particularly emotive or TV-worthy issues can be “milked” by social activists to attract members and donations to cross-subsidize other activities. In a dynamic setting this may provide an incentive for the NGO to wish to keep the cash cow issue “ticking over.” For example, according to one observer, “Greenpeace claims to be dedicated to saving the whales. They are happy to exploit the emotional impact of

the slaughter of these noble creatures to raise funds and recruit members, but less interested in acting to end the practice of whaling worldwide” (activistfacts.com/organizations/131-greenpeace/). They do occasionally run earmarked campaigns, however the vast majority of funds flowing into the big environmental NGOs goes to the general “pot” for allocation according to the broader organisational mission.

Second, we characterized the welfare implications of taking salience seriously in a model of private politics. Perhaps surprisingly, the impact need not be socially undesirable. Instead, it may help to mitigate a misalignment between the objectives of the NGO and overall social welfare. Because the NGO is not concerned about producer surplus, absent salience considerations it tends to *over*-invest in profit-reducing, anti-corporate campaigns. Taking account of salience pushes its incentives back in the other direction.

Thirdly, we provided new insights into when industries will take symbolic versus substantive actions in response to social movement pressures. We allowed firms to reduce the risk of catching the public eye by reducing impact (abatement) rather than obfuscation. We showed that the more firms rely on substantive actions to shield themselves from salience, the harder the NGO campaigns. This occurs because abatement, unlike cloaking, delivers environmental benefits and so contributes directly to NGO objectives. Not surprisingly, environmental impact is greater when firms take substantive action because it directly reduces damages, although this must be weighed against tougher NGO campaigns when considering welfare. We further showed that firms acting non-cooperatively strictly prefer symbolic to substantive action, but that a large enough industry will prefer to commit to a policy of self-regulation that involves a strictly positive amount of abatement.

Although our analysis has generated a set of new insights, there remain a number of ways in which the model was, of course, stylized, and could usefully be extended. One of the most important—in particular in linking theory to real markets and the growing empirical literature on how firms respond to social pressure—is to relax the assumption of symmetric firms. A second would be to flesh out the details of market structure and competition, exploring differences between price and quantity competition, and incorporating horizontal and vertical product differentiation. A third area with rich opportunities for further research is more detailed modeling of symbolic and substantive action, which was rather side-lined in our set-up and warrants closer attention in future work. A fourth area for further research would be to allow for multiple NGOs, whose strategies might interact in a variety of interesting ways. Finally, while we offer a theoretical framework grounded in what we believe to have been plausible assumptions, this is an area of research that would be enriched greatly by detailed empirical investigation.

Appendix

Proof of proposition 2. Totally differentiating (2) gives that $\partial h^*(n)/\partial n < 0$. It then follows that

$$\partial p(h^*, (n-1)h^*)/\partial n = -n\partial h^*(n)/\partial n + p_2(h^*, (n-1)h^*)h^* > 0.$$

□

Proof of corollary 1. Using condition (2), $\partial \mathbb{E}\pi(\gamma)/\partial \gamma = (n-1)\partial h^*(\gamma)/\partial \gamma - \alpha \underline{m}/n - p(h^*, (n-1)h^*)\alpha m_e$. If n is sufficiently close to 1 then $\partial \pi(\gamma)/\partial \gamma < 0$. Provided $\partial h^*(\gamma)/\partial \gamma$ is bounded below by a strictly positive constant, for n sufficiently large $\partial \pi(\gamma)/\partial \gamma > 0$. □

Proof of proposition 3. Let $\hat{\gamma} = b'^{-1}(\phi)/[b'^{-1}(\phi) + \alpha b'^{-1}(\alpha)]$. Then $\hat{\gamma}$ is the unique point such that marginal impact is equated across issues (i.e., $B_1(\hat{\gamma}, m) = 0$). For any $\gamma < \hat{\gamma}$, $\mathbb{E}\partial B(\gamma, m)/\partial \gamma < 0$ and for any $\gamma > \hat{\gamma}$, $\mathbb{E}\partial B(\gamma, m)/\partial \gamma > 0$. Therefore $\mathbb{E}\partial B(\gamma, m)/\partial \gamma > 0$ implies that $\alpha b'(\alpha \gamma \overline{m}) > \phi b'((1-\gamma)\overline{m})$ and $\alpha b'(\alpha \gamma \underline{m}) > \phi b'((1-\gamma)\underline{m})$. □

Proof of proposition 4. In the special case when p does not depend on h , the sign of $d\gamma^*/dn$ is the same as the sign of

$$p(h^*, (n-1)h^*) (B_1(\gamma^*, \overline{m}) - B_1(\gamma^*, \underline{m})) = \\ p(h^*, (n-1)h^*) \underbrace{\overline{m} b'(\overline{m}) (\alpha b'(\alpha) b'(\gamma^*) - \phi b'(1-\gamma^*))}_{>0} (1 - \lambda b'(\lambda)),$$

for some $\lambda \in (0, 1)$. If $b(\lambda) = \theta \log(\lambda)$, for example, then $d\gamma^*/dn$ is positive if and only if $\theta < 1$, and therefore the sign of $d\gamma^*/dn$ is generally ambiguous.

From the envelope theorem,

$$\partial \mathbb{E}B(n)/\partial n = [p(h^*, (n-1)h^*) + np_2(h^*, (n-1)h^*)h^* \\ + n(p_1(h^*, (n-1)h^*) - (n-1)p_2(h^*, (n-1)h^*))\partial h^*(n)/\partial n] [\overline{B} - \underline{B}] > 0,$$

where $\overline{B} = B(\gamma^*, \overline{m})$ and $\underline{B} = B(\gamma^*, \underline{m})$. □

Proof of lemma 1. Suppose this were not the case, so that $h^* \geq h'$. From the equilibrium conditions defining h^* and h' , it follows that

$$-p_1(h', (n-1)h')\alpha \gamma \overline{m} + (n-1)p_2(h', (n-1)h')\frac{\alpha \gamma \underline{m}}{n} = \\ [-p_1(h^*, (n-1)h^*) - (n-1)p_2(h^*, (n-1)h^*)]\frac{\alpha \gamma m_e}{n}. \quad (6)$$

Since $-p_1$ is strictly decreasing in h ,

$$-p_1(h', (n-1)h')\alpha\gamma\overline{m} > -p_1(h^*, (n-1)h^*)\frac{\alpha\gamma m_e}{n}$$

and hence (6) is false; therefore $h' > h^*$. \square

Proof of proposition 5. If the NGO only targets the salient firm, each firm picks a larger h^* from lemma 1. Now

$$\partial \mathbb{E}B(\gamma, m)/\partial h = n[p_1(h, (n-1)h) + (n-1)p_2(h, (n-1)h)] [\overline{B} - \underline{B}] < 0.$$

For any γ , expected impact is greater if the NGO targets all firms; hence the NGO can produce a strictly greater payoff by targeting all firms. \square

Proof of proposition 9. From the envelope theorem, $\partial \mathbb{E}B(\gamma^*, m)/\partial \omega = \beta n \nu^* > 0$. \square

Proof of proposition 10. If all firms play $\omega = 0$ with probability 1 then $\mathbb{E}(w) = 0$. Now if any firm i deviates to some $\omega > 0$ with positive probability, then it must be that $\mathbb{E}(\omega) > 0$, in which case γ^* increases. Since ν^* remains that same, and hence the probability of salience remains unchanged, a larger γ^* translates into a reduction in expected profit for firm i . \square

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Figure 1: The left-hand panel is a picture of a WWF-sponsored demonstration against the production practices of those oil companies operating in the Alberta oil-sands, April 2009. The right-hand panel is a picture of part of the WWF-operated Coral Triangle Reserve in South-East Asia.

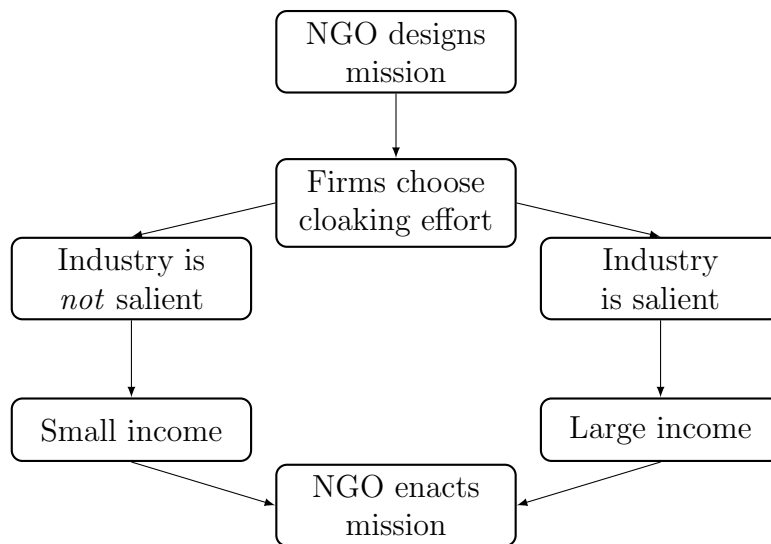


Figure 2: Structure of the game.